

CLAIMS

We claim:

1. A system for cleaning pressurized containers containing chemicals comprising:
a container having a quantity of chemicals therein wherein the container has a
5 plurality of valves for attaching a plurality of pipes thereto;
a nitrogen gas storage tank wherein the nitrogen gas storage tank is attachable
to a first valve on the container; and
a tank containing a neutralizing material connected to the container via a pipe.

2. The system of claim 1 further comprising a vacuum pump disposed between the
10 container and the tank for pumping the chemicals from the container to the tank.

3. The system of claim 1 further comprising a heat exchange means connected to the
nitrogen gas storage tank via a first pipe wherein nitrogen gas within the first pipe is heated
by the heat exchange means.

4. The system of claim 1 wherein the plurality of valves regulates a flow of
15 nitrogen gas from the nitrogen gas storage tank and the container.

5. The system of claim 1 wherein the container is a railcar.

6. The system of claim 1 wherein the container is disposed on a vehicle.

7. The system of claim 1 further comprising:
a heating means connected to the heat exchange means for feeding a fluid to
20 the heat exchange means for heating nitrogen gas that flows through the heat
exchange means.

8. The system of claim 3 further comprising:

a nitrogen vaporizer attached to a second section of the first pipe for
vaporizing the nitrogen from the nitrogen storage tank.

- 25 9. The system of claim 1 further comprising:

a first pipe within the container and attached to a valve wherein the first pipe
within the container extends to a bottom of the container.

10. The system of claim 1 further comprising:

a pipe within the container and attached to a valve and extending partially
30 within the container.

11. The system of claim 1 further comprising:

a controller interconnected with the plurality of valves for controlling the opening and closing of the valves.

12. The system of claim 2 further comprising:

5 a controller interconnected with the plurality of valves and the vacuum pump for controlling the opening and closing of the valves and for controlling the operation of the vacuum pump.

13. The system of claim 12 wherein the controller controls the opening and closing of the plurality of valves in synchronization with the vacuum pump.

10 14. The system of claim 1 further comprising:

a gauge attached to the container for measuring the internal pressure of the container.

15 15. The system of claim 1 wherein the tank comprises a quantity of a material selected from the group consisting of sodium hydroxide, potassium hydroxide, sodium carbonate, calcium hydroxide, sodium sulfite, sodium thiosulfite, ferrous chloride and solid bed absorbents.

16. The system of claim 1 wherein the tank neutralizes chlorine gas and sulfur dioxide gas.

20 17. The system of claim 2 wherein a first pipe extends from the container to the vacuum pump and further wherein a second pipe extends from the vacuum pump to the tank containing the caustic material.

18. A system for cleaning pressurized containers containing chemicals comprising:

a container having a quantity of chemicals therein wherein the container has a plurality of valves for attaching a plurality of pipes thereto;

25 an intake means for blowing air into the container via a first pipe;

a tank containing a neutralizing material connected to the container via a pipe;

and

19. The system of claims 18 wherein the intake means comprises a fan.

30 20. The system of claim 18 wherein the air is regulated into the container via a first valve wherein the first valve is connected to a controlling means.

21. The system of claim 18 further comprising:

a pressure gauge attached to one of the plurality of valves for measuring the pressure within the tank.

22. The system of claim 18 further comprising:

5 a control panel having a plurality of switches for controlling the system.

23. The system of claim 18 wherein the tank comprises a quantity of a material selected from the group consisting of sodium hydroxide, potassium hydroxide, sodium carbonate, calcium hydroxide, sodium sulfite, sodium thiosulfite, ferrous chloride and solid bed absorbents.

10 24. The system of claim 18 wherein the tank neutralizes chlorine gas and sulfur dioxide gas.

25. The system of claim 18 further comprising a vacuum pump disposed between the container and the tank for pumping the chemicals from the container to the tank.

15 26. The system of claim 25 wherein a first pipe extends from the container to the vacuum pump and further wherein a second pipe extends from the vacuum pump to the tank containing the neutralizing material.

27. The system of claim 18 further comprising a first pipe attached to the intake means and further wherein a heating means is attached to the first pipe for heating the air flowing through the first pipe.

20 28. The system of claim 18 further comprising a first pipe attached to the intake means and further wherein a drying means is attached to the first pipe for drying the air flowing through the first pipe.